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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/287,307	04/07/1999	NORMAN K. SPROCH	0268P0342	6152
7590 10/21/2004				
ANTONIO R. DURANDO 2929 E. BROADWAY BLVD TUCSON, AZ 85716		EXAMINER PHAN, THAI Q		
		ART UNIT PAPER NUMBER 2128		

DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/287,307

Applicant(s)

SPROCH, NORMAN K.

Examiner

Thai Q. Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

This Office Action is in response to applicant's request to reconsider in the reply filed on Feb. 04, 2004. Claims 1-18 are pending in the Action.

#### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agrafiotis et al, US patent no. 6,434,490 B1.

As per claim 1, Agrafiotis discloses a method and system for determining physical property of large molecules with feature limitations substantially similar to the claimed invention (Abstract and Summary of the Invention). According to Agrafiotis, the method includes steps:

mixing molecules to form a mixed solution of complex molecules for analysis (col. 2, lines 18-39, col. 8, lines 35-48, for example),

performing mass spectrometry analysis techniques, thus it would include the use of a well-known electrospray ionization, to obtain spectroscopic data of the molecule complexes (Summary of the Invention, col. 10, lines 11-39, col. 11, lines 17-39, col. 15, lines 10-15, for example),

repeating the procedure steps above or feedback the experimental values as desired in order to obtain a physical property (col. 3, lines 42-55, col. 13, lines 15-65, col. 11, line 40 to col. 14, line 54, col. 17, lines 12-25, for example), and using the spectral data to characterize the properties of the complex molecule compound structures (col. 15, lines 10-15, col. 16, lines 4-18, for example).

It would have been obvious for practitioner in the art at the time of the invention was made to use the claimed electrospray ionization in mass spectrometry analysis because electrospray ionization has been widely used in mass spectrometry to analyze mass of molecules.

As per claim 2, Agrafiotis discloses a computerized data processing system including plurality of means for performing steps, such as processing means for computing error data, improving resolution, etc., memory for storing computation results, as claimed (Figs. 2, 3, col. 16, line 5 to col. 21, line 20). Agrafiotis also discloses the computerized system is used to simulate and improve the resolution model of the characterization process (cols. 16-21).

As per claims 3-6, Agrafiotis discloses a variety of complex molecules such as DNA, proteins, protein complexes, polymer, macrocyclic polyethers, etc. as claimed being used in the process of characterization (Figs. 3-10).

As per claim 7, Agrafiotis discloses a method and system for determining molecule property of large complex molecules with feature limitations substantially similar to the claimed invention (Abstract and Summary of the Invention).

According to Agrafiotis, the method includes steps:

mixing molecules to form a mixed solution of complex molecules for analysis (col. 2, lines 18-39, col. 8, lines 35-48, for example),

performing mass spectrometry analysis techniques including electrospray ionization (because this electrospray ionization is well-known in the mass spectrometry analysis) to obtain spectroscopic data of the molecule complexes (Summary of the Invention, col. 10, lines 11-39, col. 11, lines 17-39, col. 15, lines 10-15, for example),

repeating the procedure steps above or feedback the experimental values as desired in order to obtain a physical property of the chemical compounds (Figs. 3, 4, col. 3, lines 42-55, col. 13, lines 15-65, for example), and using the spectral data to characterize the properties of the complex molecule compound structures (col. 15, lines 10-15, col. 16, lines 4-18, for example). Such chemical/physical properties would include the heat of formation of complex molecules, binding strength, mass and structure of the compounds under synthesis, etc. (col. 11, line 40 to col. 14, line 54, col. 17, lines 12-25, for example).

It would have been obvious for practitioner in the art at the time of the invention was made to use the claimed electrospray ionization in mass spectrometry analysis because electrospray ionization has been widely used in mass spectrometry to analyze mass of molecules.

As per claim 8, Agrafiotis discloses a computerized data processing system including plurality of means for performing steps, such as processing means for computing error data, improving resolution, etc., memory for storing computation results, as claimed (Figs. 2, 3, col. 16, line 5 to col. 21, line 20). Agrafiotis also

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discloses the computerized system is used to simulate and improve the resolution model of the characterization process (cols. 16-21).

As per claims 9-15, Agrafiotis discloses a variety of complex molecules such as DNA, proteins, protein complexes, polymer, macrocyclic polyethers, etc. as claimed being used in the process of characterization (Figs. 7-10).

As per claim 16, Agrafiotis discloses a bonding strength or binding energy of complex molecules such energy required to create a bond which would inherently include heat of formation in the complex large molecules as claimed (col.11, line 40 to col. 14, line 54, col. 17, lines 12-25, for example).

As per claims 17-18, Agrafiotis discloses a plurality of complex molecules, which would include and not limited to the claimed invention (cols. 11-18).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai Q. Phan whose telephone number is 703-305-3812.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean Homere can be reached on 703-308-6647. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Oct. 15, 2004



Thai Phan  
Patent Examiner  
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